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EXAMINER
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MORRISON, THOMAS A

ART UNIT	PAPER NUMBER
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3653

DATE MAILED: 06/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/772,287	<b>Applicant(s)</b> CHANG, DEUK-HWAN	
	<b>Examiner</b> Thomas A. Morrison	<b>Art Unit</b> 3653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 18 February 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) 17-20 and 35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16, 21-34 and 36-39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election with traverse of species I, the embodiment shown in Figs. 2-4, in the reply filed on February 18, 2005 is acknowledged. The traversal is on the ground(s) that (1) the claims drawn to the non-elected species are so closely related to the elected claims that they should remain in the same application; (2) there have been no references cited to show any necessity for requiring restriction; (3) the examiner has not identified different classifications; and (4) evaluation of all claims would not provide an undue burden upon the examiner. This is not found persuasive because Figs. 2-5 of the instant application show two (2) patentably distinct species with substantially different structures. As such, the claims drawn to the non-elected species are not closely related to the claims drawn to the elected species. Moreover, there is no requirement for the examiner to cite references to show that the restriction is proper. In addition, there is no requirement to show different classifications for patentably distinct **species**. Instead, the examiner provided different figures (Figs. 2-4) and (Fig. 5) to identify the two patentably distinct species in the January 26, 2005 restriction requirement. In summary, there is a substantial burden on the examiner to search for the two different patentably distinct species, since these two species have substantially different structures and substantially different operating parameters.

The requirement is still deemed proper and is therefore made FINAL.

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It is also noted that applicant states that claims 1-5, 7-18 and 21-39 are readable on the elected species. However, the species of Figs. 2-4 does not include the main pickup roller of a cam structure having an eccentric axis, as recited in claims 17-20 and 35. This feature is a feature specific to the embodiment of drawing figure 5.

Accordingly, claims 17-20 and 35 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as drawn to a nonelected species. Finally, it is noted that claim 6 does appear to be readable on the elected species. Thus, claim 6 was not withdrawn from consideration. In other words, claims 1-16 and 21-34 and 36-39 have been examined.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 2-16, 22-24, 26-27, 32-34 and 36-38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 2 and its dependent claims 3-16, there is insufficient structure recited in claim 2 to understand how the recited pressure application force is set larger than a buckling force of each of the plurality of papers. What structure makes this happen?

Also, it is unclear in claim 2 and its dependent claims, what is meant by the auxiliary pickup roller being raised up **based on a type of the plurality of papers**.

Regarding claim 6, it is unclear what is meant by **more than a predetermined frictional force** provided to the surface of the auxiliary pickup roller.

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Regarding claim 9, it is unclear how many auxiliary pickup rollers are claimed. Is it three different auxiliary rollers (i.e., the auxiliary pickup roller of claim 1 and also the at least two auxiliary pickup rollers of claim 9)?

Claim 12 recites the limitation "the supporting plate" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 12 recites the limitation "the pickup bracket" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Regarding claim 15, it is unclear what is meant by generate vibration using a **disproportion of mass** due to rotation of the cam member.

Regarding claim 22, it is unclear what operating torque is uniformly controlled. Is it the operating torque applied to the main pickup roller?

Regarding claim 23, there is insufficient structure recited in this claim to understand how the recited vertical application force is set larger than a buckling force of each of the plurality of papers. What structure makes this happen?

Regarding claim 24, it is unclear what is meant by the recited "pickup by slipping against the separating guide is generated at a front end of each of the plurality of papers".

Regarding claim 26, it is unclear what is meant by a dam-type slope.

Regarding claim 32, it is unclear how many first and second connecting parts are claimed. Is there a first connecting part and a second connecting part for each supporting plate?

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Regarding claim 33, it is unclear how the spring can be connected to the at least two supporting plates. Is the spring connected to one of the at least two supporting plates?

Regarding claim 34, it is unclear how many exciting units are claimed. Are there three different exciting units or two? (e.g., the exciting unit of claim 21 and two more exciting units in claim 34). In particular, the recited "further comprises" of claim 34 is confusing.

Regarding claim 36, there is insufficient structure recited in this claim to understand how operational force applied to the main pickup roller is constant. What recited structure does this?

Regarding claim 37, it is unclear how many auxiliary pickup rollers are claimed. Is there the auxiliary pickup roller of claim 21 and also the plurality of auxiliary pickup rollers in claim 37? In particular, the recited "further comprises" of claim 37 is confusing.

Regarding claim 38, the contact area is reduced compared to what other contact area? Also, the pressure application force per unit area increases, as compared to what other contact area?

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3, 7-11 and 22, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,375,183 (Innoue et al.). In particular, the Innoue et al. patent discloses all of the limitations of claims 1-3 and 7-11 and 22.

Regarding claim 1, Figs. 3-4 show an apparatus to feed a plurality of papers (S) in an image forming device, including

a feeding stand (1) to receive the plurality of papers (S);

a separating guide (2) provided to the feeding stand (1), with which front ends of the plurality of papers (S) makes contact;

a main pickup roller (3) provided to make contact with an uppermost layer of the plurality of papers (S) in an upper part of the feeding stand (1) to separately transfer the plurality of papers (S) towards the separating guide (2); and

an auxiliary pickup roller (21 or 23) to apply a predetermined pressure to each of the plurality of papers (S) upon transfer of the plurality of papers (S) via the main pickup roller (3).

Regarding claim 2, the Abstract and Fig. 4 disclose that a vertical pressure application force including weight of the auxiliary pickup roller is set larger than a buckling force of each of the plurality of papers to induce buckling between the auxiliary pickup roller (21 or 23) and the separating guide (2) by a front end resistance force of the separating guide (2); and

pickup by slipping against the separating guide (2) is generated at a front end of each of the plurality of papers (S) so that the auxiliary pickup roller (21 or 23) is raised

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up based on a type of the plurality of papers. In particular, the Abstract explains that the auxiliary pickup roller is raised up depending on the rigidity of the paper.

Regarding claim 3, Figs. 3-4 show a pickup bracket (5) having the main pickup roller (3) installed at one end;

a gear train (including Gc, Gb, Ga) provided inside the pickup bracket (5) to transfer external power to the main pickup roller (3); and

at least one supporting plate (22 or 24) to rotatably connect the auxiliary pickup roller (21 or 23) to an axis (3a) of the main pickup roller (3). For example, the supporting plate (22) rotatably connects auxiliary pickup roller (21) to the axis (3a) of the main pickup roller (3) via a shaft (4) and the pickup bracket (5).

Regarding claim 7, Figs. 3-4 show that the auxiliary pickup roller (21 or 23) is installed to run idle and rotates when each of the plurality of papers is transferred.

Regarding claim 8, the auxiliary pickup roller (21 or 23) will operate with the same linear velocity as the main pickup roller (3) when the auxiliary pickup roller is not being lifted. See, for example, Fig. 3.

Regarding claim 9, Fig. 4 shows at least two auxiliary pickup rollers (21 and 23).

Regarding claim 10, Fig. 4 shows a combination of a plurality of divided roller members (21 and 23) are provided as the auxiliary pickup roller.

Regarding claim 11, Fig. 4 shows a pressure applying unit (including 22 and 24) to generate, and to maintain the vertical pressure application force of the auxiliary pickup roller (21 and/or 23).



Regarding claim 22, the operating torque is inherently uniformly controlled in the Innoue apparatus in order for the pickup roller to properly feed sheets.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 4-5 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,375,183 (Innoue et al.).

Regarding claim 4, Figs. 1-7, 12-13 and 15-17 show auxiliary pickup rollers that are positioned at different distances from separating guides. Fig. 4 shows auxiliary pickup rollers (21 and 23) that are relatively close a separating guide 2, while Fig. 13 shows an auxiliary roller (124) that is relatively far away from a separating guide (133). Also, Fig. 15 shows an adjustable separating guide (141), which allows spacing to be adjusted between a separating guide (141) and an auxiliary roller (124). Thus, selecting a convenient range of distances between an auxiliary pickup roller and a separating guide as recited in claim 4 is merely a design choice within the skill of one of ordinary skill in the art.

Regarding claim 5, Figs. 1-7, 12-13 and 15-17 show different ways of applying force to auxiliary pickup rollers. Figs. 1-2 show arms that apply force to auxiliary rollers (6 and 14), while Fig. 12 shows a spring (126) that biases an auxiliary pickup rollers (124) into contact with a stack of paper. Moreover, Figs. 1-7, 12-13 and 15-16 show

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different length moment arms that can apply different amounts of force to auxiliary pickup rollers. Thus, selecting a convenient range of forces to apply to an auxiliary pickup roller is merely a design choice within the skill of one of ordinary skill in the art.

Regarding claim 12, Fig. 12 shows a pressure applying unit (including 126) that has an elastic member (126) to apply pressure on a supporting plate (125), wherein the pressure applying unit (including 126) is supported via a pickup bracket (123) at one end and the pressure applying unit (including 126) is supported via the supporting plate (125) at another end. In particular, column 9, lines 39-45 explain that the elastic member (126) urges the supporting plate (125) in a counterclockwise direction as viewed in FIG. 12 figure so that the auxiliary pickup roller (124) is urged into contact with the leading end of the stack of sheets. It would have been obvious to one of ordinary skill in the art at the time of the invention, to provide the supporting plate (22 or 24) shown in Fig. 4, with an elastic member in order to ensure that the auxiliary pickup roller (21 or 23) is urged into contact with a leading end of the paper, as taught in Innoue et al.

Regarding claim 13, Fig. 12 shows that the elastic member (126) includes one of a torsion spring, a coil spring, and a plate spring.

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,375,183 (Innoue et al.) as applied to claim 2 above, and further in view of U.S. Patent Publication No. 20020113364 (Hsieh et al.). The Innoue et al. patent shows most of the limitations of claim 6, but does not specifically show the friction member.

U.S. Patent Publication No. 20020113364 discloses that it is well known to provide a roller (33) with a thin friction member (31) to provide the proper friction coefficient for feeding paper and reduce manufacturing cost. See Abstract and Summary Of The Invention. It would have been obvious to one of ordinary skill in the art at the time of the invention, to provide the surface of the auxiliary pickup roller of Innoue et al. with a friction member to provide the proper friction coefficient for feeding paper, as taught by U.S. Patent Publication No. 20020113364.

6. Claims 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,375,183 (Innoue et al.) as applied to claim 3 above, and further in view of Japanese Publication No. 4-201933. The Innoue et al. patent discloses all of the limitations of claims 14 and 16, except for the exciting unit.

Regarding claim 14, Fig. 1 of Japanese Publication No. 4-201933 shows an exciting unit (4) coupled to a feeding stand (6a), to prevent overlapped transfer of a plurality of papers (1 and 2). See English Abstract. It would have been obvious to one of ordinary skill in the art at the time of the invention, to provide the feeding stand (1) of Innoue et al. with an exciting unit in order to prevent double feeding of sheets, as taught by Japanese Publication No. 4-201933.

Regarding claim 16, the exciting unit (4) of Japanese Publication No. 4-201933 includes a vibrating member. See English Abstract.

7. Claims 21, 23-32 and 36-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,375,183 (Innoue et al.) in view of Japanese

Publication No. 4-201933. Innoue et al. in view of Japanese Publication No. 4-201933 meets all of the limitations of claims 21, 23-32 and 36-39.

Regarding claim 21, Figs. 3-4 of Innoue et al. show an apparatus to feed paper in an image forming device, including

- a feeding stand (1) to receive a plurality of papers (S);
- a separating guide (2) provided to the feeding stand (1) inclined at a predetermined angle with which a front end of the plurality of papers (S) makes contact;
- a main pickup roller (3) to transfer the plurality of papers (S) towards the separating guide (2) using a frictional force generated by rotational contact with the plurality of papers (S);
- an auxiliary pickup roller (21 or 23) to apply a predetermined pressure on the plurality of papers upon transfer of the plurality of papers (S) via the main pickup roller (3).

Fig. 1 of Japanese Publication No. 4-201933 shows an exciting unit (4) coupled to a feeding stand (6a), to prevent overlapped transfer of a plurality of papers (1 and 2). See English Abstract. It would have been obvious to one of ordinary skill in the art at the time of the invention, to provide the feeding stand (1) of Innoue et al. with an exciting unit in order to prevent double feeding of sheets, as taught by Japanese Publication No. 4-201933.

Regarding claim 23, the Abstract of the Innoue et al. patent discloses that a vertical application force including weight of the auxiliary pickup roller (21 or 23) is set larger than a buckling force of each of the plurality of papers (S) to induce buckling

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between the auxiliary pickup roller (21 or 23) and the separating guide (2) by front end resistance force of the separating guide (2). See, for example, Fig. 4 and Abstract.

Regarding claim 24, the Abstract of Innoue et al. discloses that pickup by slipping against the separating guide (e.g., 2) is generated at a front end of each of the plurality of papers so that the auxiliary pickup roller (e.g., 210 is raised up.

Regarding claim 25, Figs. 3-4 of Innoue et al. shows that the auxiliary pickup roller (23) is rotatably installed to an axis (3a) of the main pickup roller (3) via elements (24, 4 and 12).

Regarding claim 26, Figs. 3-4 of Innoue et al. show that the separating guide (2) has a predetermined dam-type slope.

Regarding claim 27, Fig. 4 of Innoue et al. shows that the separating guide (20 further includes

a plurality of friction members (2a) attached to a surface portion of the separating guide (2).

Regarding claim 28, Figs. 3-4 of Innoue et al. show a pickup arm (5 or 12) to support the main pickup roller (3).

Regarding claim 29, Fig. 4 of Innoue et al. shows that the auxiliary pickup roller (21 or 23) is installed between the main pick up roller (3) and the separating guide (2) through the pickup arm (5 or 12).

Regarding claim 30, Fig. 4 shows a power transferring unit (including Ga, Gb and Gc) to provide power to the main pickup roller (3).

Regarding claim 31, Fig. 3-4 show at least two supporting plates (22 and 4) to support the auxiliary pickup roller (23) between the main pickup roller (3) and the separating guide (2).

Regarding claim 32, Figs. 3-4 show that the at least two supporting plates (24 and 4) include a first connecting part (4) rotatably connected to a rotational axis (3a) of the main pickup roller (3) (i.e., part (4) is connected via element (12) to axis (3a)); and a second connecting part (24) to which the auxiliary pickup roller (23) is rotatably installed.

Regarding claim 36, the operational force applied to the main pickup roller (3) of Innoue et al. is inherently constant in order for the pickup roller (3) to properly pickup each sheet.

Regarding claim 37, Fig. 4 of Innoue et al. shows that the auxiliary pickup roller (21 or 23) further includes a plurality of auxiliary pickup rollers (21 and 23).

Regarding claim 38, Fig. 4 of Innoue et al. shows a contact area between the plurality of auxiliary pickup rollers (21 and 23) and each of the plurality of papers (S1) is reduced, as compared to a single auxiliary roller extending across the entire width of each paper sheet (S1). This also makes the pressure application force per unit area increase.

Regarding claim 39, Figs. 3-4 of Innoue et al. show that the auxiliary pickup roller (21 or 23) is merely rotated by frictional force created when each of the plurality of

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papers (S) picked up by rotation of the main pickup roller (3) passes through the auxiliary pickup roller (21 or 23).

8. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,375,183 (Innoue et al.) (hereinafter "Innoue '183") in view of Japanese Publication No. 4-201933 as applied to claim 32 above, and further in view of U.S. Patent No. 6,502,816 (Innoue et al.) (hereinafter "Innoue '816"). Innoue '183 in view of Japanese Publication No. 4-201933 meets most of the limitations of claim 33, but does not specifically show an elastic member arrangement as claimed.


Fig. 13 of Innoue '816 shows an elastic member (including 68) having a torsion spring (68) with one end connected to the rotational axis (not numbered) of a main pickup roller (7) (i.e., one end of torsion spring (68) is connected to the axis (not numbered) of the main roller (7) via element (9)) and another end (opposite end) of spring (68) is connected to at least two supporting plates (67a and 67) of an auxiliary roller (66), to provide pressure to a plurality of papers (S). The spring (68) ensures that the roller (66) is biased toward the stack. See column 10, lines 55-60. It would have been obvious to one of ordinary skill in the art at the time of the invention, to provide the at least two supporting plates (24 and 4) in Figs. 3-4 of Innoue '183 with a biasing member, in order to ensure that the auxiliary roller (23) of Innoue '183 is biased toward the paper, as taught by Innoue '816.

**Conclusion**

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas A. Morrison whose telephone number is (571) 272-7221. The examiner can normally be reached on M-F, 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Walsh can be reached on (571) 272-6944. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
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